IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	:	Confirmation No. 9550
Yoshiaki HIRANO et al.	:	Docket No. 2003-1020A
Serial No. 10/626,573	:	Group Art Unit 1621
Filed July 25, 2003	:	Examiner Rosalynd A. Keys
AROMATIC ETHERS AND PROCESS FOR PRODUCING AROMATIC ETHERS	:	Mail Stop AF

DECLARATION UNDER 37 CFR 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Naohiko ITAYAMA, citizen of Japan and residing in Nishi-machi, Takatsuki-shi, Osaka-fu, Japan, declare and say that:

1. I completed the master's course, with a major of energy and hydrocarbon chemistry, in the Graduate School of Engineering, Kyoto University, Japan, in March, 2002.

2. I have a master's degree of engineering from Kyoto University.

3. From April, 2002 up to the present, I have been an employee of Nippon Shokubai Co., Ltd., the assignee of the above-identified application, and I have been engaged in research works for process development and catalyst design.

4. I am familiar with the subject matter of the above-identified application.

5. I have read the Official Action mailed December 19, 2005 and the prior art references cited, and am familiar with the subject matter thereof.

6. To show that resorcinol bis(hydroxyethyl)ether prepared by the process of Summer et al. (WO 91/16292) cannot have the claimed purity of the above-identified application, I have made the following experiments.

Experiments

Since resorcinol bis(hydroxyethyl)ether is commercially available, I have purchased it from Tokyo Chemical Industry Co., Ltd., and have tried to show the crystallization of bis(hydroxyethyl)ether in the presence of alkali metals will lead to contamination of resorcinol bis(hydroxyethyl)ether with alkali metals at a level of not less than 100 ppm.

First, 19.82 g of resorcinol bis(hydroxyethyl)ether (available from Tokyo Chemical Industry Co., Ltd.) and 0.10 g of potassium carbonate (available from Wako Pure Chemical Industries, Ltd.) were placed in a 100-mL four-necked flask, which was then purged with nitrogen gas. The inner temperature of the flask was increased up to 90.4°C, while stirring, so that the materials in the flask were completely melted. Then added dropwise to the flask was 39.94 g of 4% NaOH solution prepared from 3.58 g of 96% sodium hydroxide (available from Kishida Chemical Co., Ltd.) and 82.59 g of ultrapure water (obtained by model Milli-Q SP TOC available from Millipore Corporation). After the completion of dropwise addition, the flask was allowed to stand still, causing precipitation of white crystals. The crystals were collected by filtration, and washed with 50.01 g of ultrapure water. The crystals were dried at 50°C under reduced pressure for 25 hours to give 18.52 g of sample crystals. The metal contents of the sample crystals were measured three times by X-ray fluorescence spectroscopy (model PW2404 available from Philips Analytical). As a result, it was found that the sample crystals have Na contents of 3521 ppm, 3551 ppm, and 3406 ppm (the average of which is 3493 ppm) and K contents of 60 ppm, 63 ppm, and 69 ppm (the average of which is 64 ppm).

Discussion

As can be seen from these results, resorcinol bis(hydroxyethyl)ether will be contaminated with alkali metals and will have metal contents of not less than 100 ppm when purified by crystallization in the presence of alkali metals as described by Summer et al.

In view of this fact, it is concluded that resorcinol bis(hydroxyethyl)ether prepared by the process of Summer et al. cannot have the claimed purity of the above-identified application.

7. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issued thereon.

This 6th day of June, 2006

Naohiko Itayama

Naohiko ITAYAMA